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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Yoshiyuki AKIYAMA et al.) Group Art Unit: 1791
Application No.: 10/757,413) Examiner: Jill Lynne HEITBRINK
Filed: January 15, 2004) Confirmation No.: 3372
For: WAVEFORM MONITORING)
APPARATUS AND METHOD FOR)
MONITORING WAVEFORM)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

APPEAL BRIEF

In support of the Notice of Appeal filed November 17, 2008, under 37 C.F.R. § 41.31, and pursuant to 37 C.F.R. § 41.37, Appellants submit this Appeal Brief and a check in the amount of \$540.00 for the Appeal Brief fee set forth in 37 C.F.R. § 41.20(b)(2). If any additional fees or extensions of time are required to enter this Appeal Brief, please charge any such fees to our Deposit Account 06-0916.

I. Real Party in Interest

The real party in interest is Yazaki Corporation, the assignee of record.

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II. Related Appeals and Interferences

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Appellants, Appellants' legal representatives, and Assignee are not aware of any prior or pending appeals, interferences, or judicial proceedings which might be related

to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. Status of Claims

Claims 1, 3-7, and 9-14 are pending. Claims 1, 3-7, and 9-14 were rejected. Claims 2 and 8 have been cancelled. No claim is currently allowed, confirmed, withdrawn, or objected to. Claims 1, 3-7, and 9-14 are being appealed.

IV. Status of Amendments

No amendments were filed subsequent to the final rejection.

V. Summary of Claimed Subject Matter

Claims 1 and 7 are the only independent claims involved in this appeal. Neither claim 1 nor claim 7 includes any means plus function or step plus function language.

Claim 1 is directed to a waveform monitoring apparatus and recites "a hydraulic cylinder, incorporated in an injection molding device for ejecting a molding material" (see, e.g., Fig. 1, including exemplary hydraulic cylinder 23, injection molding device 20, mold 21, and molded product 31; and from p. 7, line 22, to p. 8, line 11); "a sensor, generating pressure data of the hydraulic cylinder" (see, e.g., Fig. 1, including exemplary pressure sensor 12; and p. 8, lines 12-18); "a determinant, forming a measured value waveform based on the pressure data, and determining whether the pressure data exceeds a reference pressure waveform by a predetermined range" (see, e.g., Fig. 1, including exemplary determination unit 11 and its process section 13; and from p. 8, line 14, to p. 10, line 1); "a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant . . . wherein the marking is thicker than other portions of the measured value waveform that do not exceed the reference pressure" (see, e.g., Figs. 1-3, including exemplary markings 25

determined by process section 13; from p. 9, line 3, to p. 10, line 18; and from p. 12, line 3, to p. 13, line 6); and “a display for displaying the measured value waveform having the excess portion to which the marking is applied” (see, e.g., Figs. 1-3, including exemplary display 14 and markings 25; p. 10, lines 2-18; and p. 12, lines 3-19).

Claim 7 is directed to a method for monitoring a waveform and recites “generating pressure data of a hydraulic cylinder incorporated in an injection molding device for ejecting a molding material” (see, e.g., Fig. 1, including exemplary hydraulic cylinder 23, injection molding device 20, mold 21, molded product 31, and pressure sensor 12; p. 6, lines 5-6; from p. 7, line 22, to p. 8, line 18); “forming a measured value waveform based on the pressure data” and “determining whether the pressure data exceeds a reference pressure waveform by a predetermined range” (see, e.g., Fig. 1, including exemplary determination unit 11, pressure sensor 12, and process section 13; p. 6, lines 7-9; and from p. 8, line 12, to p. 10, line 1); “applying a marking to an excess portion of the measured value waveform determined in the determinant step . . . wherein the marking is thicker than other portions of the measured value waveform that do not exceed the reference pressure” (see, e.g., Figs. 1-3, including exemplary markings 25 determined by process section 13; p. 6, lines 10-14; from p. 9, line 3, to p. 10, line 18; and from p. 12, line 3, to p. 13, line 6); and “displaying the measured value waveform having the excess portion to which the marking is applied” (see, e.g., Figs. 1-3, including exemplary display 14 and markings 25; p. 6, lines 12-14; p. 10, lines 2-18; and from p. 12, line 3, to p. 13, line 6).

Claims 3-6 and 9-14 are the only dependent claims involved in this appeal. None of dependent claims 3-6 and 9-14 is argued separately.

VI. Grounds of Rejection to be Reviewed

Claims 1 and 7 were rejected under eight separate grounds. Each of these grounds, which are concisely stated below, is to be reviewed in this appeal.

Ground A: Whether claims 1, 3, 5-7, 9, and 11-14 are unpatentable under 35 U.S.C. § 103(a) over Moriwaki (Japanese Publication No. 7-205244, "Moriwaki '244") in view of Sekido et al. (Japanese Publication No. 7-290548, "Sekido") (see Final Office Action ("FOA"), ¶¶ 2-4).

Ground B: Whether claims 1, 3, 5-7, 9, and 11-14 are unpatentable under 35 U.S.C. § 103(a) over Morikawa (Japanese Publication No. 62-187009, "Morikawa") (see FOA, ¶¶ 5-7).

Ground C: Whether claims 1, 3-7, and 9-14 are unpatentable under 35 U.S.C. § 103(a) over Neko et al. (European Patent Publication No. 0 418 398 B1, "Neko") (see FOA, ¶¶ 10-12).

Ground D: Whether claims 1, 3-7, and 9-14 are unpatentable under 35 U.S.C. § 103(a) over Moriwaki (Japanese Publication No. 2001-287254, "Moriwaki '254") in view of Neko (see FOA, ¶¶ 13-16).

Ground E: Whether claims 1, 3, 5-7, 9, and 11-14 are unpatentable under 35 U.S.C. § 103(a) over Moriwaki '244 in view of Sekido, and further in view of Inden et al. (U.S. Patent No. 4,905,165, "Inden") and Okabe et al. (Colorblind Barrier Free presentation titled "How to make figures and presentations that are friendly to color blind people," "Colorblind") (see FOA, ¶¶ 17-20).

Ground F: Whether claims 1, 3, 5-7, 9, and 11-14 are unpatentable under 35 U.S.C. § 103(a) over Morikawa in view of Inden, and further in view of Colorblind (see FOA, ¶¶ 21-24).

Ground G: Whether claims 1, 3-7, and 9-14 are unpatentable under 35 U.S.C. § 103(a) over Neko in view of Inden, and further in view of Colorblind (see FOA, ¶¶ 27-30).

Ground H: Whether claims 1, 3-7, and 9-14 are unpatentable under 35 U.S.C. § 103(a) over Moriwaki '254 in view of Neko, and further in view of Inden and Colorblind (see FOA, ¶¶ 31-35).

VII. Arguments

Appellants respectfully submit that the rejections based on Grounds A-H should be withdrawn for the reasons set forth in Sections A-H below.

A. § 103(a) Rejection Over Moriwaki '244 and Sekido

1. *Claims 1, 3, 5, 6, 12, and 13*

Claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244 and Sekido because neither Moriwaki '244 nor Sekido teaches or suggests any one of (a) "a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant," (b) "a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure," and (c) "a display for displaying the measured value waveform having the excess portion to which the marking is applied," as recited in claim 1, and because none of these features would have been obvious over Moriwaki '244 and Sekido.

(a) The Marking Applier

Moriwaki '244 is directed to "[a]n apparatus for deciding propriety of a molded form" (Moriwaki '244, abstract) and discloses a processor 13 that decides whether a molded form is defective based on "whether the analog result waveform [for that molded

form] is inserted between the upper limit waveform and the lower limit waveform” (Moriwaki ‘244, abstract and Figs. 2-4). Moriwaki ‘244 does not, however, teach or suggest “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant.” Instead, Moriwaki ‘244 relies on its processor’s determination of whether the analog result waveform remains between the upper and lower limit waveforms, which does not involve applying any marking to any particular portion of its waveform (see Moriwaki ‘244, abstract and Figs. 2-4). Further, consistent with Appellants’ position, the Examiner does not actually assert that Moriwaki ‘244 teaches or suggests the claimed marking applier (see FOA, ¶¶ 3-4), and although the Examiner asserts that Moriwaki’s “processor . . . determines whether the product is defective, and outputs a malfunction signal” (FOA, ¶ 3), neither a defectiveness determination nor a malfunction signal is a marking, much less one applied “to an excess portion of the measured value waveform determined by the determinant.” Thus, Moriwaki ‘244 does not teach or suggest the claimed marking applier.

Sekido is directed to a “method for judging [the] quality of [a] molded product” (Sekido, title) and discloses comparing the injection pressure to “preset upper and lower limit values . . . of a good molded product” (Sekido, abstract). Sekido also does not, however, teach or suggest “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant.” Instead, Sekido, just like Moriwaki ‘244, merely compares the injection pressure to “preset upper and lower limit values,” which does not involve applying any marking “to an excess portion of the measured value waveform determined by the determinant.” Further, although Sekido has T-shaped and box-shaped labels in Figs. 1(a)-1(c), those labels are reference

labels for the patent application document, not features actually illustrated in Sekido's display (and even if they were actually displayed, those labels pertain to the "preset upper and lower limit values" and are not applied to any particular portion of the measured waveform). Furthermore, consistent with Appellants' position, the Examiner does not actually assert that Sekido teaches or suggests the claimed marking applier (see FOA, ¶¶ 3-4), and although the Examiner asserts that Sekido "clearly shows the displaying of the measure injection pressure waveform" and that "[i]t would have been obvious . . . to show the measure pressure waveform in the display [of Moriwaki '244]" (FOA, ¶ 3), the mere displaying of the waveform does not meet a marking applier "applying a marking to an excess portion of the measured value waveform determined by the determinant." Thus, Sekido also does not teach or suggest the claimed marking applier.

Therefore, Moriwaki '244 and Sekido, whether taken alone or combined, fail to teach or suggest at least the marking applier of claim 1. Although "[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, . . . [the Examiner] must explain why the difference(s) between the prior art and the claimed invention would have been obvious" (M.P.E.P. § 2141(III), emphasis added). Here, the Examiner neither asserted that Moriwaki '244 and Sekido teach or suggest the marking applier, nor explained why the claimed marking applier would have been obvious. The rejection under Ground A is thus improper. Moreover, to the extent that the Examiner ignored the marking applier outright because it applies an alleged "printed matter" feature – the thicker marking – to which the Examiner gave no patentable weight (see FOA, ¶ 4), the Examiner erred because claim 1 still requires the

marking applier, an affirmatively claimed structural feature, even if the “thicker” nature of the marking it applies were, *arguendo*, properly denied patentable weight. See *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983) (“[u]nder section 103, the [B]oard [and thus the Examiner] cannot dissect a claim, excise the printed matter from it, and declare the remaining portion of the mutilated claim to be unpatentable”).

Accordingly, because neither Moriwaki ‘244 nor Sekido teaches or suggests the marking applier and the Examiner did not explain why the marking applier would have been obvious, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki ‘244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

(b) The Thicker Marking

Initially, neither Moriwaki ‘244 nor Sekido teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that the thicker marking is “non-functional descriptive material” that is not entitled to patentable weight under *In re Lowry* and *In re Ngai*, two “printed matter” cases (see FOA, ¶ 4). Appellants respectfully disagree, and submit that the thicker marking is entitled to patentable weight for the reasons set forth next.

First, the thicker marking does not actually constitute printed matter under current case law. Printed matter includes a rather narrow class of indicia conventionally printed on a substrate, such as instructions for using an RNA normalizing and amplifying kit, *In re Ngai*, 367 F.3d 1336, 1337-39 (Fed. Cir. 2004); digits printed on a band, *In re Gulack*, 703 F.2d at 1385; expiration date indicia printed on a pharmaceuticals container, *In re*

Levin, 1997 WL 44797, at *2 (Fed. Cir. 1997); volumetric indicia printed on a measuring cup, *In re Miller*, 418 F.2d 1392, 1394-95 (C.C.P.A. 1969); and spots on the faces of dice, *Ex parte Gwinn*, 112 U.S.P.Q. 439, 441 (Pat. Off. Bd. App. 1955), and thus consists of standard indicia, i.e., letters, lines, or symbols, that are static, i.e., with substantially constant attributes. But the thicker marking of claim 1 is unlike any such indicia because it is applied to an excess portion of the claimed “*measured value waveform*,” which the claimed “determinant” has determined “*exceeds a reference pressure waveform* by a predetermined range,” and thus its shape depends upon and varies according to the measured waveform and its location along the waveform depends on the determinant’s determinations (please see the exemplary markings 25 in Figs. 2 and 3 of Appellants’ application).¹ Thus, the thicker marking of claim 1 does not constitute printed matter to begin with and is entitled to patentable weight.

Second, should the Board conclude that the thicker marking does in fact constitute “printed matter,” Appellants note that “[w]here the printed matter is not functionally related to the substrate, the printed matter will not distinguish the invention from the prior art in terms of patentability,” *In re Gulack*, 703 F.2d at 1385, but submit that the thicker marking is entitled to patentable weight because “there exists [a] new

¹ Although the printed matter cases do not appear to expressly state that printed matter could never be extended in any way, the Federal Circuit has “cautioned against a liberal use of ‘printed matter rejections’ under section 103,” *In re Lowry*, 32 F.3d 1579, 1583 (Fed. Cir. 1994), and rejected an attempt to extend printed matter beyond its traditional scope, see *id.* (emphasizing that “[a] ‘printed matter rejection’ under § 103 stands on questionable legal and logical footing” and noting that “[d]espite this cautioning, the Board erroneously extended a printed matter rejection under sections 102 and 103 to a new field [including allegedly analogous data structures]”). Therefore, it would be inappropriate to extend printed matter to markings that depend on and vary according to the measurements and determinations of other features recited in the claim.

and unobvious functional relationship between the printed matter and the substrate," *In re Ngai*, 367 F.3d at 1338 (citing *In re Gulack*, 703 F.2d at 1386).

Specifically, in *Gulack*, which reversed a printed matter rejection, the court found that digits printed on a circular band were sufficiently functionally related to the circular band because there was "an endless sequence of digits-each digit residing in a unique position with respect to every other digit in an endless loop . . . [so that] the digits exploit[ed] the endless nature of the band." *In re Gulack*, 703 F.2d at 1386-87. Just as in *Gulack*, the thicker marking is functionally related to the waveform monitoring apparatus both because there is an correspondence between each point along the thicker marking and each corresponding point along the waveform measured by the waveform monitoring apparatus and because the marking only appears in the excess portion determined by the determinant, so that the marking exploits both the wave-shaped nature of the measured value waveform and the determinant's determinations pertaining to its location along the measured value waveform (please see the exemplary markings 25 in Figs. 2 and 3 of Appellants' application).

Along the same lines, in *Miller*, which also reversed a printed matter rejection, the court found that a new and unobvious functional relationship existed between "indicia specifying a given volume" and a measuring receptacle on which the indicia were printed. *In re Miller*, 418 F.2d at 1395-96. Just as in *Miller*, where the indicia provided information about a property of something being measured by the receptacle (i.e., the volume), the thicker marking provides information about properties of the waveform measured by the waveform monitoring apparatus (e.g., the presence of an excess portion of the waveform determined by the determinant to exceed the reference

pressure waveform by a predetermined range, the location of that excess portion along that waveform, etc.) Thus, Appellants submit that just as in *Gulack* and *Miller*, there is a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its components.

Third, the cases cited by the Examiner fail to support the Examiner's printed matter rejection. In *Lowry*, the court actually reversed a printed matter rejection, finding that "[t]he PTO did not establish that the ADOs [which the PTO had incorrectly analogized to printed matter] . . . lack a new and nonobvious functional relationship with the memory [Lowry's claimed apparatus]" because they "perform a function in the memory. *Gulack* requires no more." *In re Lowry*, 32 F.3d 1579, 1584 (Fed. Cir. 1994). But the thicker marking performs many functions, including providing information about properties of the waveform measured by the waveform monitoring apparatus, such as whether the measured waveform includes an excess portion determined by the determinant to exceed the reference pressure waveform by a predetermined range, which yields tangible benefits such as "notifying in advance of any nonconforming product," "eliminat[ing] the need for performing a visual check after the molded products are formed," and "preventing outflow of nonconforming products" (Appellant's specification, p. 13, lines 1-6).² Thus, *Lowry* does not support the proposition that the thicker marking should be denied patentable weight.

² The Examiner acknowledges these functions but asserts that "Moriwaki performs these functions . . . without the use of the specifically [claimed] type of marking. Thus the type of marking on the display is 'non-functional descriptive material'" (Advisory Action, Continuation Sheet). However, whether a claim feature constitutes "non-functional descriptive material" or "printed matter" does not depend in any way on what any other reference may or may not teach or on what such other reference may be able to achieve using different approaches, i.e., without any marking.

In *Ngai*, the court affirmed a printed matter rejection, but only in an extreme situation where the printed matter, which in *Ngai* was instructions on how to use a claimed kit, was completely unrelated to the other claimed components, i.e., where “the printed matter in no way depends on the kit, and the kit does not depend on the printed matter.” *Ngai*, 367 F.3d at 1339. Contrary to *Ngai*’s instructions, the thicker marking and the waveform monitoring apparatus and its components are interdependent because the apparatus depends on the thicker marking to yield the tangible benefits mentioned above, and because the thicker marking depends on the waveform monitoring apparatus and its components since it cannot draw itself and its shape and location depend both on the shape of the measured value waveform and on the determinant’s determinations regarding its application to any excess portion along the waveform. Further, *Ngai* may be inapposite because it pertains to a § 102 printed matter rejection, *see id.* at 1338, unlike the § 103 rejection at issue, and “[a] ‘printed matter rejection’ under § 103 stands on questionable legal and logical footing.” *In re Gulack*, 703 F.2d at 1385 n.8. Thus, *Ngai* also does not support the proposition that the thicker marking should be denied patentable weight.

Therefore, Moriwaki ‘244 and Sekido, whether taken alone or combined, fail to teach or suggest at least the thicker marking of claim 1; the thicker marking does not constitute printed matter under current case law; and, in any event, there exists a new and unobvious functional relationship between the marking and the waveform monitoring apparatus and its components, so that the thicker marking should have been given patentable weight.

Accordingly, because neither Moriwaki '244 nor Sekido teaches or suggests the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

(c) The Display

Neither Moriwaki '244 nor Sekido teaches or suggests "a display for displaying the measured value waveform having the excess portion to which the marking is applied." Moriwaki '244 and Sekido may display waveforms, but claim 1 does not merely recite a display for displaying a waveform, but a display "for displaying the measured value waveform having the excess portion to which the marking is applied." For the reasons set forth above in Sections VII.A.1.(a) and VII.A.1.(b), neither Moriwaki '244 nor Sekido teaches or suggests the claimed thicker marking or the marking applier applying that marking to the excess portion, and such features are not obvious over Moriwaki '244 and Sekido. Thus, neither Moriwaki '244 nor Sekido teaches or suggests a display "for displaying the measured value waveform *having the excess portion to which the marking is applied.*"

Accordingly, because neither Moriwaki '244 nor Sekido teaches or suggests the claimed display, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244 and Sekido because neither Moriwaki '244 nor Sekido teaches or suggests any one of (a) "applying a marking to an excess portion of the measured value waveform," (b) applying a marking that "is thicker than other portions of the measured value waveform that do not exceed the reference pressure," and (c) "displaying the measured value waveform having the excess portion to which the marking is applied," as recited in claim 7, and because none of these features would have been obvious over Moriwaki '244 and Sekido.

(a) Applying the Marking

For the reasons set forth in Section VII.A.1.(a), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Moriwaki '244 does not teach or suggest "applying a marking to an excess portion of the measured value waveform"; that Sekido also does not teach or suggest this feature; that Moriwaki '244 and Sekido, whether taken alone or combined, thus fail to teach or suggest at least this feature; that the Examiner neither asserted that Moriwaki '244 and Sekido teach or suggest this feature nor explained why such a feature would have been obvious; and that to the extent that the Examiner ignored this feature outright because it applies an alleged "printed matter" feature – the thicker marking – to which the Examiner gave no patentable weight, the Examiner erred.

Accordingly, because neither Moriwaki '244 nor Sekido teaches or suggests "applying a marking to an excess portion of the measured value waveform" and the Examiner did not explain why this feature would have been obvious, Appellants submit

that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Section VII.A.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '244 nor Sekido teaches or suggests applying a marking that "is thicker than other portions of the measured value waveform that do not exceed the reference pressure"; that the thicker marking does not actually constitute printed matter under current case law; and that even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because neither Moriwaki '244 nor Sekido teaches or suggests applying the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

(c) Displaying the Excess Portion with the Marking

Neither Moriwaki '244 nor Sekido teaches or suggests "displaying the measured value waveform having the excess portion to which the marking is applied." Moriwaki '244 and Sekido may display waveforms, but claim 7 does not merely recite displaying a

waveform, but displaying “the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth above in Sections VII.A.2.(a) and VII.A.2.(b), neither Moriwaki ‘244 nor Sekido teaches or suggests applying the claimed thicker marking to any excess portion,” and such features are not obvious over Moriwaki ‘244 and Sekido. Thus, neither Moriwaki ‘244 nor Sekido teaches or suggests “displaying the measured value waveform *having the excess portion to which the marking is applied.*”

Accordingly, because neither Moriwaki ‘244 nor Sekido teaches or suggests “displaying the measured value waveform having the excess portion to which the marking is applied,” Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki ‘244 and Sekido, and respectfully request that the Board order that the rejection of these claims under Ground A be withdrawn.

B. § 103(a) Rejection Over Morikawa

1. Claims 1, 3, 5, 6, 12, and 13

Claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Morikawa because Morikawa does not teach or suggest any one of (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant,” (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1, and because none of these features would have been obvious over Morikawa.

(a) The Marking Applier

Morikawa is directed to a “molding condition monitor for [an] injection molding machine” (Morikawa, title) and discloses that a molded product is deemed normal when its sampled wave falls “within a range set by a permissible range setting device 30” and that otherwise “an alarm is issued by operating an alarming device 34” (Morikawa, abstract). Morikawa does not, however, teach or suggest “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant.” Instead, Morikawa relies on an alarm, which does not involve applying any marking to any particular portion of its “sampled wave” (see Morikawa, abstract and Figs. 2-3). Further, consistent with Appellants’ position, the Examiner does not actually assert that Morikawa teaches or suggests the claimed marking applier (see FOA, ¶¶ 6-7), and although the Examiner asserts that Morikawa’s “measured value is compared with upper and lower limits and if the value is outside the range an alarm is issued” (FOA, ¶ 6), neither a comparison with limits nor an alarm is a marking, much less one applied “to an excess portion of the measured value waveform determined by the determinant.”

Therefore, Morikawa does not teach or suggest at least the marking applier of claim 1. Although “[t]he prior art reference . . . need not teach or suggest all the claim limitations, . . . [the Examiner] must explain why the difference(s) between the prior art and the claimed invention would have been obvious” (M.P.E.P. § 2141(III), emphasis added). Here, the Examiner neither asserted that Morikawa teaches or suggests the marking applier, nor explained why the claimed marking applier would have been obvious. The rejection under Ground B is thus improper. Moreover, to the extent that

the Examiner ignored the marking applier outright because it applies an alleged “printed matter” feature – the thicker marking – to which the Examiner gave no patentable weight (see FOA, ¶ 7), the Examiner erred because claim 1 still requires the marking applier, an affirmatively claimed structural element, even if the “thicker” nature of the marking it applies were, *arguendo*, properly denied patentable weight. See *In re Gulack*, 703 F.2d at 1385 (“[u]nder section 103, the [B]oard [and thus the Examiner] cannot dissect a claim, excise the printed matter from it, and declare the remaining portion of the mutilated claim to be unpatentable”).

Accordingly, because Morikawa does not teach or suggest the marking applier and the Examiner did not explain why the marking applier would have been obvious, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

(b) The Thicker Marking

Initially, Morikawa does not teach or suggest “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that the thicker marking is “non-functional descriptive material” that is not entitled to patentable weight under *Lowry* and *Ngai* (see FOA, ¶ 7). Appellants respectfully disagree, and submit that the thicker marking is entitled to patentable weight for the reasons set forth in Section VII.A.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein.

Therefore, Morikawa does not teach or suggest “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure”; the thicker marking does not actually constitute printed matter under current case law; and even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because Morikawa does not teach or suggest the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

(c) The Display

Morikawa does not teach or suggest “a display for displaying the measured value waveform having the excess portion to which the marking is applied.” Morikawa may display waveforms, but claim 1 does not merely recite a display for displaying a waveform, but a display “for displaying the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth in Sections VII.B.1.(a) and VII.B.1.(b), Morikawa does not teach or suggest the claimed thicker marking or the marking applier applying that marking to the excess portion, and such features are not obvious over Morikawa. Thus, Morikawa does not teach or suggest a display “for displaying the measured value waveform *having the excess portion to which the marking is applied.*”

Accordingly, because Morikawa does not teach or suggest the claimed display, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

2. *Claims 7, 9-11, and 14*

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa because Morikawa does not teach or suggest any one of (a) “applying a marking to an excess portion of the measured value waveform,” (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 7, and because none of these features would have been obvious over Morikawa.

(a) Applying the Marking

For the reasons set forth in Section VII.B.1.(a), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Morikawa does not teach or suggest “applying a marking to an excess portion of the measured value waveform”; that the Examiner neither asserted that Morikawa teaches or suggests this feature nor explained why such a feature would have been obvious; and that to the extent that the Examiner ignored this feature outright because it applies an alleged “printed matter” feature – the thicker marking – to which the Examiner gave no patentable weight, the Examiner erred.

Accordingly, because Morikawa does not teach or suggest “applying a marking to an excess portion of the measured value waveform” and the Examiner did not explain

why this feature would have been obvious, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Sections VII.A.1.(b) and VII.B.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Morikawa does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure”; that the thicker marking does not actually constitute printed matter under current case law; and that even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because Morikawa does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure” and the thicker marking should have been given patentable weight, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

(c) Displaying the Excess Portion with the Marking

Morikawa does not teach or suggest “displaying the measured value waveform having the excess portion to which the marking is applied.” Morikawa may display waveforms, but claim 7 does not merely recite displaying a waveform, but displaying “the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth in Sections VII.B.2.(a) and VII.B.2.(b), Morikawa does not teach or suggest applying the claimed thicker marking to any excess portion and such features are not obvious over Morikawa. Thus, Morikawa does not teach or suggest “displaying the measured value waveform *having the excess portion to which the marking is applied.*”

Accordingly, because Morikawa does not teach or suggest “displaying the measured value waveform having the excess portion to which the marking is applied,” Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, and respectfully request that the Board order that the rejection of these claims under Ground B be withdrawn.

C. § 103(a) Rejection Over Neko

1. Claims 1, 3-6, 12, and 13

Claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko because Neko does not teach or suggest any one of (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant,” (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “a display for displaying the measured value waveform having the excess portion to which the

marking is applied,” as recited in claim 1, and because none of these features would have been obvious over Neko.

(a) The Marking Applier

Neko is directed to “an apparatus capable of automatically discriminating the conformity of articles” (Neko, col. 1, lines 5-7) and discloses that “the conformity of the articles is discriminated by comparing each actual resin pressure sampled . . . during the execution of the actual molding cycle with the reference resin pressure” (Neko, col. 2, lines 37-41). The Examiner asserts that Neko discloses “[a] marking applier (col. 11, lines 11-39) appl[ying] a marking (value ER) to an excess portion of the measured value waveform determined by the determinant” (FOA, ¶ 11). Appellants respectfully disagree for the reasons set forth next.

First, Neko’s “value ER” is not a marking. Neko samples a plurality of “actual resin pressures P_i ’ sampled in respective sampling periods” (Neko, col. 11, lines 14-16) and compares each of those “with the reference resin pressure P_i sampled in a corresponding period on the pressure transition pattern” (Neko, col. 11, lines 16-18). Neko then considers whether “the absolute value $|P_i - P_i'|$ of the difference between the reference resin pressure and the actual resin pressure” exceeds an “allowable value ϵ ” (Neko, col. 11, lines 29-37) and, whenever it does, Neko “updates the value ER in the defective sample counter to the value ‘ER + 1’” (Neko, col. 11, lines 38-40). Thus, Neko’s ER value is a counter variable, i.e., a mere number in a computer memory, not a marking. Second, Neko’s value ER is not applied “to an excess portion of the measured value waveform determined by the determinant,” much less to such a portion displayed on a display, because Neko’s value ER is merely a number in a memory. Third,

although the Examiner asserts that Neko's value ER is a marking, the Examiner does not point to any structure in Neko corresponding to a marking applier. To the extent that the Examiner intended to identify "the PMCCPU 114 [which] updates the value ER" (Neko, col. 11, line 38) as a marking applier, Appellants submit that this structure at best applies the value ER to a memory location, not to any excess portion of a measured value waveform.

Therefore, Neko does not teach or suggest at least the "marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant" of claim 1, and that feature is not obvious over Neko. The rejection under Ground C should thus be withdrawn.

Accordingly, because Neko does not teach or suggest the claimed marking applier and the Examiner did not provide any explanation why that feature would otherwise be obvious, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

(b) The Thicker Marking

Initially, Neko does not teach or suggest "a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure." The Examiner does not assert the contrary, but argues that the thicker marking is "non-functional descriptive material" that is not entitled to patentable weight under *Lowry* and *Ngai* (see FOA, ¶ 12). Appellants respectfully disagree, and submit that the thicker marking is entitled to patentable weight for the reasons set forth in Section VII.A.1.(b),

which are reasserted and incorporated by reference in this section as if fully asserted herein.

Therefore, Neko does not teach or suggest “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure”; the thicker marking does not actually constitute printed matter under current case law; and even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack, Miller, Lowry, and Ngai*.

Accordingly, because Neko does not teach or suggest the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

(c) The Display

Neko does not teach or suggest “a display for displaying the measured value waveform having the excess portion to which the marking is applied.” Neko may display waveforms, but claim 1 does not merely recite a display for displaying a waveform, but a display “for displaying the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth in Sections VII.C.1.(a) and VII.C.1.(b), Neko only teaches a counter variable ER and does not teach or suggest the claimed thicker marking or the marking applier applying that marking to the excess portion, and such features are not obvious over Neko.

Accordingly, because Neko does not teach or suggest a display “for displaying the measured value waveform *having the excess portion to which the marking is applied*,” Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko because Neko does not teach or suggest any one of (a) “applying a marking to an excess portion of the measured value waveform,” (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 7, and because none of these features would have been obvious over Neko.

(a) Applying the Marking

For the reasons set forth in Section VII.C.1.(a), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Neko does not teach or suggest “applying a marking to an excess portion of the measured value waveform”; and that the Examiner did not provide any other explanations why such a feature would have been obvious.

Accordingly, because Neko does not teach or suggest “applying a marking to an excess portion of the measured value waveform” and the Examiner did not explain why this feature would have been obvious, Appellants submit that claim 7 and its dependent

claims 9-11 and 14 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Sections VII.A.1.(b) and VII.C.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted in this section, Appellants submit that Neko does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure”; that the thicker marking does not actually constitute printed matter under current case law; and that even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because Neko does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure” and the thicker marking should have been given patentable weight, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

(c) Displaying the Excess Portion with the Marking

Neko does not teach or suggest “displaying the measured value waveform having the excess portion to which the marking is applied.” Neko may display waveforms, but claim 7 does not merely recite displaying a waveform, but displaying

“the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth in Sections VII.C.2.(a) and VII.C.2.(b), Neko does not teach or suggest applying the claimed thicker marking to any excess portion. Therefore, Neko does not teach or suggest “displaying the measured value waveform having the excess portion to which the marking is applied,” and such features are not obvious over Neko.

Accordingly, because Neko does not teach or suggest “displaying the measured value waveform having the excess portion to which the marking is applied,” Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, and respectfully request that the Board order that the rejection of these claims under Ground C be withdrawn.

D. § 103(a) Rejection Over Moriwaki '254 and Neko

1. Claims 1, 3-6, 12, and 13

Claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki '254 and Neko because neither Moriwaki '254 nor Neko teaches or suggests any one of (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant,” (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1, and because none of these features would have been obvious over Moriwaki '254 and Neko.

(a) The Marking Applier

Moriwaki '254 is directed to the monitoring of abnormalities in an injection molding machine (Moriwaki '254, title) and discloses that a "control unit discriminates whether there is an abnormal value with respect to various waveform data related to abnormality among various waveform data stored in the memory device" (Moriwaki '254, abstract). Moriwaki '254 does not, however, teach or suggest "a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant." The Examiner asserts that in Moriwaki '254 "a marking (outlying observation) is applied to an excess portion of the measured value waveform and displayed on the display including variances (paragraphs [0008]-[0013])" (FOA, ¶ 14). Appellants respectfully disagree. Although Moriwaki '254 discloses that a judgment is made about whether there is an outlying observation (Moriwaki '254, ¶ 8), and that a waveform having an outlying may be displayed or printed (Moriwaki '254, ¶ 9), none of the cited paragraphs teaches or suggests any marking *applied to its waveform* having an outlying observation. If a waveform has an outlying observation, and that waveform is printed, then of course the outlying observation will be printed since it is part of the waveform, but no marking is being applied to any portion of the waveform in that process. Further, although the Examiner correctly points out that Moriwaki '254 discloses the outputting of statistics about the outlying observation (Moriwaki '254, ¶¶ 11-12), such statistics are not applied to any portion of the waveform. Even if such statistics were displayed on the display, they would be displayed apart from the waveform to ensure visibility, and are not applied to any portion of the waveform. In any event, statistics are numbers, which are inconsistent with a marking that has a thickness

different in a portion of the waveform than in other portions of the waveform as in claim

1. Thus, Moriwaki '254 does not teach or suggest the claimed marking applier.

Neko is directed to "an apparatus capable of automatically discriminating the conformity of articles" (Neko, col. 1, lines 5-7) and discloses that "the conformity of the articles is discriminated by comparing each actual resin pressure sampled . . . during the execution of the actual molding cycle with the reference resin pressure" (Neko, col. 2, lines 37-41). The Examiner asserts that Neko discloses "[a] marking applier (col. 11, lines 11-39) appl[ying] a marking (value ER) to an excess portion of the measured value waveform determined by the determinant" (FOA, ¶ 11). Appellants respectfully disagree. First, Neko's "value ER" is not a marking. Neko samples a plurality of "actual resin pressures P_i " sampled in respective sampling periods" (Neko, col. 11, lines 14-16) and compares each of those "with the reference resin pressure P_i sampled in a corresponding period on the pressure transition pattern" (Neko, col. 11, lines 16-18). Neko then considers whether "the absolute value $|P_i - P_i'|$ of the difference between the reference resin pressure and the actual resin pressure" exceeds an "allowable value ϵ " (Neko, col. 11, lines 29-37) and, whenever it does, Neko "updates the value ER in the defective sample counter to the value 'ER + 1'" (Neko, col. 11, lines 38-40). Thus, Neko's ER value is a counter variable, i.e., a mere number in a computer memory, not a marking. Second, Neko's value ER is not applied "to an excess portion of the measured value waveform determined by the determinant," much less to such a portion displayed on a display, because Neko's value ER is merely a number in a memory. Third, although the Examiner asserts that Neko's value ER is a marking, the Examiner does not point to any structure in Neko corresponding to a marking applier. To the extent that

the Examiner intended to identify “the PMCCPU 114 [which] updates the value ER” (Neko, col. 11, line 38) as a marking applier, Appellants submits that this structure at best applies the value ER to a memory location, not to any excess portion of a measured value waveform. Thus, Neko also does not teach or suggest the claimed marking applier.

Therefore, Moriwaki ‘254 and Neko, whether taken alone or combined, fail to teach or suggest at least the marking applier of claim 1. Although “[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, . . . [the Examiner] must explain why the difference(s) between the prior art and the claimed invention would have been obvious” (M.P.E.P. § 2141(III)). Here, the Examiner asserted that Moriwaki ‘254 and Neko disclose the marking applier, but Appellants refuted those assertions above. Because the Examiner did not provide any other explanations why the claimed marking applier would have been obvious, the rejection under Ground D should be withdrawn.

Accordingly, because neither Moriwaki ‘254 nor Neko teaches or suggests the claimed marking applier and the Examiner did not provide any other explanations why that marking applier would have been obvious, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki ‘254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

(b) The Thicker Marking

Initially, neither Moriwaki ‘254 nor Neko teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the

reference pressure.” The Examiner does not assert the contrary, but argues that the thicker marking is “non-functional descriptive material” that is not entitled to patentable weight under *Lowry* and *Ngai* (see FOA, ¶ 16). Appellants respectfully disagree, and submit that the thicker marking is entitled to patentable weight for the reasons set forth in Section VII.A.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein.

Therefore, neither Moriwaki ‘254 nor Neko teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure”; the thicker marking does not actually constitute printed matter under current case law; and even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because neither Moriwaki ‘254 nor Neko teaches or suggests the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki ‘254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

(c) The Display

Neither Moriwaki ‘254 nor Neko teaches or suggests “a display for displaying the measured value waveform having the excess portion to which the marking is applied.” Moriwaki ‘254 and Neko may display waveforms, but claim 1 does not merely recite a

display for displaying a waveform, but a display “for displaying the measured value waveform having the excess portion to which the marking is applied.” For the reasons set forth in Sections VII.D.1.(a) and VII.D.1.(b), neither Moriwaki ‘254 nor Neko teaches or suggests the claimed thicker marking or the marking applier applying it to the excess portion, and such features are not obvious over Moriwaki ‘254 and Neko.

Accordingly, because neither Moriwaki ‘254 nor Neko teaches or suggests a display “for displaying the measured value waveform *having the excess portion to which the marking is applied*,” Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki ‘254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki ‘254 and Neko because neither Moriwaki ‘254 nor Neko teaches or suggests any one of (a) “applying a marking to an excess portion of the measured value waveform,” (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” and (c) “displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 7, and because none of these features would have been obvious over Moriwaki ‘254 and Neko.

(a) Applying the Marking

For the reasons set forth in Section VII.D.1.(a), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Moriwaki ‘254 does not teach or suggest “applying a marking to an excess portion

of the measured value waveform”; that Neko also does not teach or suggest this feature; and that Moriwaki ‘254 and Neko, whether taken alone or combined, thus fail to teach or suggest at least this feature.

Accordingly, because Moriwaki ‘254 and Neko do not teach or suggest “applying a marking to an excess portion of the measured value waveform” and the Examiner did not explain why this feature would have been obvious, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki ‘254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Sections VII.A.1.(b) and VII.D.1.(a), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki ‘254 nor Neko teaches or suggests applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure”; that the thicker marking does not actually constitute printed matter under current case law; and that even if the Board concludes that the thicker marking does in fact constitute printed matter, the thicker marking is entitled to patentable weight because there exists a new and unobvious functional relationship between the thicker marking and the waveform monitoring apparatus and its component in view of *Gulack*, *Miller*, *Lowry*, and *Ngai*.

Accordingly, because neither Moriwaki ‘254 nor Neko teaches or suggests the thicker marking and the thicker marking should have been given patentable weight, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not

unpatentable over Moriwaki '254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

(c) Displaying the Excess Portion with the Marking

Neither Moriwaki '254 nor Neko teaches or suggests "displaying the measured value waveform having the excess portion to which the marking is applied." Moriwaki '254 and Neko may display waveforms, but claim 7 does not merely recite displaying a waveform, but displaying "the measured value waveform having the excess portion to which the marking is applied." For the reasons set forth in Sections VII.D.2.(a) and VII.D.2.(b), neither Moriwaki '254 nor Neko teaches or suggests applying the claimed thicker marking to any excess portion. Therefore, neither Moriwaki '254 nor Neko teaches or suggests "displaying the measured value waveform having the excess portion to which the marking is applied," and such features are not obvious over Moriwaki '254 and Neko.

Accordingly, because neither Moriwaki '254 nor Neko teaches or suggests "displaying the measured value waveform having the excess portion to which the marking is applied," Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '254 and Neko, and respectfully request that the Board order that the rejection of these claims under Ground D be withdrawn.

E. § 103(a) Rejection Over Moriwaki '244, Sekido, Inden, and Colorblind

1. Claims 1, 3, 5, 6, 12, and 13

Claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind because none of these references teaches or suggests (a) "a marking applier, applying a marking to an excess portion of the

measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 1, and because none of these features would have been obvious over these references.

(a) The Marking Applier and the Display

For the reasons set forth in Sections VII.A.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '244 nor Sekido teaches or suggests “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 18-20).

Accordingly, because none of Moriwaki '244, Sekido, Inden, and Colorblind teaches or suggests the claimed marking applier and display, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground E be withdrawn.

(b) The Thicker Marking

Initially, neither Moriwaki '244 nor Sekido teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that Inden

and Okabe cure the failure of Moriwaki '244 and Sekido to teach this feature.

Specifically, the Examiner asserts that Inden discloses "a change in color of the trend format or a change in line into a dotted line," that Colorblind discloses "using lines of different shapes and thickness so as to accommodate people that are color[] blind," and that "[i]t would have been obvious . . . to use a thicker marking for the portion of the measured value outside the high and low limits in Inden [which discloses at c. 5, ll. 41-42, "changing a color of the line of the trend format"] so that a person who is color[] blind can distinguish the change easily" (see FOA, ¶¶ 19-20). Appellants respectfully disagree.

Inden is directed to improvements in the displaying of measured data on a screen (Inden, col. 1, lines 12-13). As the Examiner correctly points out, Inden teaches two variations to the displaying of an "abnormal information condition": (1) "changing a color of the line of the trend format" and (2) "changing the line into a dotted line" (Inden, col. 5, lines 38-43). Appellants respectfully submit, however, that neither changing the color of the line nor changing the line into a dotted line changes or alters the thickness of the line in any way. Consistent with Appellants' position, the Examiner had to resort to another reference, Colorblind, as allegedly curing Inden's deficiency regarding thickness.

Colorblind is directed to color blindness and discloses various ways to make figures and presentations more "friendly" to color blind people (Colorblind, pp. 1-2). As the Examiner correctly points out, Colorblind mentions that "[t]hicker lines and bigger symbols make it easier to distinguish colors. (More cone cells can be used for color detection.)" (Colorblind, p. 13). However, this is insufficient to render claim 1 obvious.

First, the Examiner's is improperly relying on impermissible hindsight reasoning. See M.P.E.P. § 2145(X)(A). As Colorblind explains, there is a wide variety of types of color blindness, as not all color blind people have trouble distinguishing the same colors (Colorblind, pp. 3-6), and thus one of ordinary skill in the art would be unlikely to take into account how to optimize display for every potential clinical situation when designing electronic systems. Moreover, although Colorblind emphasizes that in the majority of cases the problem is distinguishing between red and green (Colorblind, p. 3), and Inden does mention the use of red, nothing in Inden indicates that the other lines would necessarily be green, and thus there would be no reason whatsoever to modify Inden to optimize it for red-green color blind people, except of course in an effort to meet a claimed feature, which constitutes impermissible hindsight reasoning.

Second, even if Colorblind's very general statement were followed to modify Inden, as the Examiner proposes, Colorblind would prompt one to make the entire line in Inden thicker *in all areas*, so that a color blind person can better see the colors on both sides of a change of color, not just in any particular portion. Indeed, Fig. 14 in Colorblind, which illustrates its recommendations about "[t]hicker lines and bigger symbols," makes it clear that Colorblind is showing an indiscriminate increase in thickness everywhere along each line so that the different colors are better perceived because "[m]ore cone cells can [then] be used for color detection" (Colorblind, p. 13). Thus, Colorblind does not teach or suggest in any way to alter the thickness of a line only in a particular area (and thus to lose the benefits it seeks of having more cone cells and seeing colors better in the other areas as well). In other words, although Colorblind mentions the general use of thicker lines, it fails to teach or suggest a "a marking . . .

thicker than other portions of the measured value waveform that do not exceed the reference pressure.”³

Accordingly, because Moriwaki '244, Sekido, Inden, and Colorblind, whether taken alone or combined, fail to teach or suggest at least the thicker marking of claim 1, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground E be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind because none of these references teaches or suggests (a) “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 7, and because none of these features would have been obvious over Moriwaki '244, Sekido, Inden, and Colorblind.

³ Although Appellant submitted similar arguments in the Request for Reconsideration filed on September 17, 2008, the Examiner’s only response to those arguments was that “[h]owever, Inden teaches ‘a variation in the method such as changing a color of the line of the trend format or changing the line into a dotted line, may be considered’ as an alternative to the red line at the left side.” Appellants’ arguments regarding Colorblind stand uncontroverted, however, because whatever Inden teaches has no bearing on what Colorblind teaches, and, in any event, even if Inden teaches a change in color or dotted line on the left side, Colorblind’s general teaching about thicker lines still applies indiscriminately as much to the left side, be it dotted or with a different color, as to the right side, and thus Colorblind fails to render obvious the use of a waveform thicker only in a particular “excess portion” of the waveform.

(a) Applying the Marking and Displaying the Marking

For the reasons set forth in Sections VII.A.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '244 nor Sekido teaches or suggests "applying a marking to an excess portion of the measured value waveform" and "displaying the measured value waveform having the excess portion to which the marking is applied," as recited in claim 7. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 18-20).

Accordingly, because none of Moriwaki '244, Sekido, Inden, and Colorblind teaches or suggests these applying and displaying steps, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground E be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Section VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that none of Moriwaki '244, Sekido, Inden, and Colorblind teaches or suggests applying a marking that "is thicker than other portions of the measured value waveform that do not exceed the reference pressure."

Accordingly, because Moriwaki '244, Sekido, Inden, and Colorblind, whether taken alone or combined, fail to teach or suggest at least applying the thicker marking of claim 7, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '244, Sekido, Inden, and Colorblind, and respectfully

request that the Board order that the rejection of these claims under Ground E be withdrawn.

F. § 103(a) Rejection Over Morikawa, Inden, and Colorblind

1. Claims 1, 3-6, 12, and 13

Claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Morikawa, Inden, and Colorblind because none of these references teaches or suggests (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 1, and because none of these features would have been obvious over Morikawa, Inden, and Colorblind.

(a) The Marking Applier and the Display

For the reasons set forth in Sections VII.B.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Morikawa does not teach or suggest “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 22-24).

Accordingly, because none of Morikawa, Inden, and Colorblind teaches or suggests the claimed marking applier and display, Appellants submit that claim 1 and its

dependent claims 3-6, 12, and 13 are not unpatentable over Morikawa, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground F be withdrawn.

(b) The Thicker Marking

Initially, Morikawa does not teach or suggest “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that Inden and Colorblind allegedly cure the failure of Morikawa to teach this feature.

For the reasons set forth in Sections VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Inden nor Colorblind teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Morikawa, Inden, and Colorblind teaches or suggests the thicker marking of claim 1, Appellants submit that claim 1 and its dependent claims 3, 5, 6, 12, and 13 are not unpatentable over Morikawa, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground F be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, Inden, and Colorblind because none of these references teaches or suggests (a) “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) applying a marking that “is thicker than other portions of the

measured value waveform that do not exceed the reference pressure,” as recited in claim 7, and because none of these features would have been obvious over Morikawa, Inden, and Colorblind.

(a) Applying the Marking and Displaying the Marking

For the reasons set forth in Sections VII.B.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Morikawa does not teach or suggest “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 7. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 18-20).

Accordingly, because none of Morikawa, Inden, and Colorblind teaches or suggests these applying and displaying steps, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground F be withdrawn.

(b) Applying a Thicker Marking

Initially, Morikawa does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that Inden and Colorblind allegedly cure the failure of Morikawa to teach this feature.

For the reasons set forth in Section VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit

that none of Inden and Colorblind teaches or suggests applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Morikawa, Inden, and Colorblind teaches or suggests applying the thicker marking of claim 7, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Morikawa, Inden, and Colorblind. Accordingly, Appellants respectfully request that the Board overrule the Examiner and order that the rejection based on Ground F be withdrawn.

G. § 103(a) Rejection Over Neko, Inden, and Colorblind

1. Claims 1, 3-6, 12, and 13

Claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, Inden, and Colorblind because none of these references teaches or suggests (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 1, and because none of the features would have been obvious over Neko, Inden, and Colorblind.

(a) The Marking Applier and the Display

For the reasons set forth in Sections VII.C.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Neko does not teach or suggest “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and

“a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 28-30).

Accordingly, because none of Neko, Inden, and Colorblind teaches or suggests the claimed marking applier and display, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground G be withdrawn.

(b) The Thicker Marking

Initially, Neko does not teach or suggest “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that Inden and Colorblind allegedly cure the failure of Neko to teach this feature.

For the reasons set forth in Sections VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Inden nor Colorblind teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Neko, Inden, and Colorblind teaches or suggests the thicker marking of claim 1, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Neko, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground G be withdrawn.

2. Claims 7, 9-11, and 14

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, Inden, and Colorblind because none of these references teaches or suggests (a) “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 7, and because none of these features would have been obvious over Neko, Inden, and Colorblind.

(a) Applying the Marking and Displaying the Marking

For the reasons set forth in Sections VII.C.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that Neko does not teach or suggest “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 7. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 28-30).

Accordingly, because none of Neko, Inden, and Colorblind teaches or suggests these applying and displaying steps, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, Inden, and Colorblind, and respectfully request that the Board order that the rejection of these claims under Ground G be withdrawn.

(b) Applying a Thicker Marking

Initially, Neko does not teach or suggest applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary, but argues that Inden and Colorblind allegedly cure the failure of Neko to teach this feature.

For the reasons set forth in Section VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that none of Inden and Colorblind teaches or suggests applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Neko, Inden, and Colorblind teaches or suggests the thicker marking of claim 7, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, Inden, and Colorblind, and respectfully request that the Board order that the rejection of the claims under Ground G be withdrawn.

H. § 103(a) Rejection Over Moriwaki '254, Neko, Inden, and Colorblind

1. Claims 1, 3-6, 12, and 13

Claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki '254, Neko, Inden, and Colorblind because none of these references teaches or suggests (a) “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is

applied,” and (b) “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 1.

(a) The Marking Applier and the Display

For the reasons set forth in Sections VII.D.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '254 nor Neko teaches or suggests “a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant” and “a display for displaying the measured value waveform having the excess portion to which the marking is applied,” as recited in claim 1. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 33-35).

Accordingly, because none of Moriwaki '254, Neko, Inden, and Colorblind teaches or suggests the marking applier and the display, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki '254, Neko, Inden, and Colorblind, and respectfully request that the Board overrule the Examiner an order that the rejection based on Ground H be withdrawn.

(b) The Thicker Marking

For the reasons set forth in Sections VII.D.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '254 nor Neko teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.” The Examiner does not assert the contrary but asserts that Inden and Okabe allegedly cure the failure of Moriwaki '254 and Neko to teach this feature.

For the reasons set forth in Sections VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted in this section, Appellants submit that neither Inden nor Colorblind teaches or suggests “a marking . . . thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Moriwaki '254, Neko, Inden, and Colorblind teaches or suggests the thicker marking, Appellants submit that claim 1 and its dependent claims 3-6, 12, and 13 are not unpatentable over Moriwaki '254, Neko, Inden, and Colorblind, and respectfully request that the Board overrule the Examiner and order that the rejection based on Ground H be withdrawn.

2. *Claims 7, 9-11, and 14*

Claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Neko, Inden, and Colorblind because none of these references teaches or suggests (a) “applying a marking to an excess portion of the measured value waveform” and “displaying the measured value waveform having the excess portion to which the marking is applied,” and (b) applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure,” as recited in claim 7.

(a) Applying the Marking and Displaying the Marking

For the reasons set forth in Sections VII.D.1.(a) and (c), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that neither Moriwaki '254 nor Neko teaches or suggests “applying a marking to an excess portion of the measured value waveform” and “displaying the measured

value waveform having the excess portion to which the marking is applied,” as recited in claim 7. Appellants further submit that neither Inden nor Colorblind teaches or suggests these features, and that the Examiner does not assert the contrary (see FOA, ¶¶ 33-35).

Accordingly, because none of Moriwaki '254, Neko, Inden, and Colorblind teaches or suggests applying and displaying the claimed marking, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '254, Neko, Inden, and Colorblind, and respectfully request that the Board overrule the Examiner an order that the rejection based on Ground H be withdrawn.

(b) Applying a Thicker Marking

For the reasons set forth in Section VII.E.1.(b), which are reasserted and incorporated by reference in this section as if fully asserted herein, Appellants submit that none of Moriwaki '254, Neko, Inden, and Colorblind teaches or suggests applying a marking that “is thicker than other portions of the measured value waveform that do not exceed the reference pressure.”

Accordingly, because none of Moriwaki '254, Neko, Inden, and Colorblind teaches or suggests applying the thicker marking, Appellants submit that claim 7 and its dependent claims 9-11 and 14 are not unpatentable over Moriwaki '254, Neko, Inden, and Colorblind, and respectfully request that the Board overrule the Examiner and order that the rejection based on Ground H be withdrawn.

VIII. Claims Appendix

The appealed claims can be found in the attached appendix.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
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Dated: February 17, 2009

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Claims Appendix

1. (Previously Presented) A waveform monitoring apparatus, comprising:

a hydraulic cylinder, incorporated in an injection molding device for ejecting a molding material;

a sensor, generating pressure data of the hydraulic cylinder;

a determinant, forming a measured value waveform based on the pressure data, and determining whether the pressure data exceeds a reference pressure waveform by a predetermined range;

a marking applier, applying a marking to an excess portion of the measured value waveform determined by the determinant; and

a display for displaying the measured value waveform having the excess portion to which the marking is applied,

wherein the marking is thicker than other portions of the measured value waveform that do not exceed the reference pressure.

2. (Canceled)

3. (Original) The waveform monitoring apparatus as set forth in claim 1, further comprising a sorter which sorts a product formed from the molding material,

wherein the determinant outputs a determination signal indicating whether the pressure data exceeds the reference pressure waveform by the predetermined range to the sorter.

4. (Original) The waveform monitoring apparatus as set forth in claim 1, wherein the determinant stops an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times.

5. (Original) The waveform monitoring apparatus as set forth in claim 1, wherein the determinant sets a upper limit range and a lower limit range with respect to the reference pressure waveform as the predetermined range.

6. (Original) The waveform monitoring apparatus as set forth in claim 1, further comprising a storage which stores the measured value waveform to which the marking is applied.

7. (Previously Presented) A method for monitoring a waveform, comprising the steps of: generating pressure data of a hydraulic cylinder incorporated in an injection molding device for ejecting a molding material;

forming a measured value waveform based on the pressure data;

determining whether the pressure data exceeds a reference pressure waveform by a predetermined range;

applying a marking to an excess portion of the measured value waveform determined in the determinant step; and

displaying the measured value waveform having the excess portion to which the marking is applied,

wherein the marking is thicker than other portions of the measured value waveform that do not exceed the reference pressure.

8. (Canceled)

9. (Previously Presented) The method as set forth in claim 7, further comprising the step of outputting a determination signal to a sorter which sorts a product formed from the molding material,

wherein the determination signal indicates whether the pressure data exceeds the reference pressure waveform by the predetermined range.

10. (Original) The method as set forth in claim 7, further comprising the step of stopping an injecting operation of the injection molding device when the measured value waveform in which the pressure data exceeds a reference pressure waveform by a predetermined range is continuously detected more than a predetermined times.

11. (Original) The method as set forth in claim 7, wherein the predetermined range is set a upper range and a lower range with respect to the reference pressure waveform.

12. (Original) The method as set forth in claim 1, further comprising the step of storing the measured value waveform to which the marking is applied.

13. (Previously Presented) The waveform monitoring apparatus as set forth in claim 1, wherein the marking applier applies a graphical marking to the excess portion of the displayed measured value waveform determined by the determinant.

14. (Previously Presented) The method as set forth in claim 7, wherein a graphical marking is applied to the excess portion of the displayed measured value waveform determined in the determinant step.

Evidence Appendix

None.

Related Proceedings Appendix

None.